

# Home Computing WEEKLY

Britain's brightest  
weekly, packed with  
reviews and listings

No. 55  
Mar 27-Apr 2, 1984

40p

**Software reviews for:**  
Spectrum, BBC,  
Commodore 64,  
Dragon, Texas,  
Oric

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**AND:**  
your letters,  
news, One  
Woman's View,  
charts,  
U.S. Scene...



## Musical Spectrums

Spectrums have joined an electronic rock group — a five-man band called *Melisma*.

Three of the composers are accustomed to keyboard synthesizers, though Mike made mistakes with a fourth word as a controller.

Band leader Barry Connor, a 35-year-old London bus driver, said they could not use far more sophisticated musical effects.

Up to 15 minutes of music could be stored in the Spectrums and transmitted by radio-wave using a group monitor and studio Rupert Gordon.

Mr Connor, who drives a big 40-vehicle tanker between Mill Hill and Yerrum, said "It's as if you've got 10 hands up and down the keyboard. It extends what you are able to do."

"If you wanted to make tracks, for example, you would need a mixer and expensive equipment. This way you don't."

"We are able to produce far more complex music, so if there were another three or four members of the band."

The sound is manipulated, or more added, using a joystick to

*Continued on page 3*

## Fourth name is final

Remember the Sumaris, Elan and Tiaz? Now you can forget them all. The year to remember is *Entrepreneur* Computers.

It's the new name of the company which is launching two computers — the £425 and a £245 model in 1985 — now delayed until September.

Here's a step by step guide to the middle drive names.

■ The first name, Sumaris, was dropped because production is now taking place in the UK and not Japan and because Elan is a business computer of the same name, made largely by Hitachi.

■ They also ended on Elan and produced paperwork, like manuals and a magazine, as well as products with the name. Elan is named as to be used by several other

*Continued on page 3*



# Stell Software

— — — for top quality programs

Make learning fun with these top quality educational games!

**Maths Inventory** - Maths Inventory allows the parent to monitor the progress of the children and find out how they are doing. (Spectrum £10)

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**Identikit** - Shows them a range of features and build up a face on the screen. (Spectrum £10)

**Time** - From the 1st to the 12th hour, the game tells you the time. (Spectrum £10)

**Words for Children** - A word game for children. (Spectrum £10)

**Railreader** - A word game for children. (Spectrum £10)

Spectrum programs only £6-95 BBC, Electron & Commodore 64 only £7-95  
 Ask for Stell Software at larger branches of Boots, John Menzies,  
 and all good computer shops, where most titles are available  
 In case of difficulties order direct from Stell Software Dealers should contact their regular distributors.

# No. 1 in Education



# DETAILS

Level 9C has long been the single most popular title available as a 16 Kbit level game on most of the major computers from the 1980s onwards and is now being featured on the 16 Kbit and 32 Kbit.

**ORIGINAL LEVEL 9 ADVENTURES** is a complete 16 Kbit version of the original 16 Kbit game.

**2. ADVANCED QUEST** Double the fun & challenge with the 32 Kbit version featuring 16 Kbit graphics and 32 Kbit sound.

**3. ADVANCED QUEST** Double the fun & challenge with the 32 Kbit version featuring 16 Kbit graphics and 32 Kbit sound.

**4. ADVANCED QUEST** Double the fun & challenge with the 32 Kbit version featuring 16 Kbit graphics and 32 Kbit sound.

**5. ADVANCED QUEST** Double the fun & challenge with the 32 Kbit version featuring 16 Kbit graphics and 32 Kbit sound.

# LEVEL 9 ADVENTURES

BBC 12K COMMODORE 64 SPECTRUM 12K  
LYNX 12K NASCOM 12K ORIC 12K ATARI 12K



Level 9 adventures are available at £9.95 from good computer stores or may order from us with extra charge. Send order at £24.95 for catalogue to the address below - and please describe your needs.

## LEVEL 9 COMPUTING

Dept. 1001 1001 High Street, Buxton, Derbyshire S18 1LR

# REVIEWS

Adventures set in a world of fantasy and magic, the adventures of the original 16 Kbit version of the original 16 Kbit game.

**2. ADVANCED QUEST** Double the fun & challenge with the 32 Kbit version featuring 16 Kbit graphics and 32 Kbit sound.

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**5. ADVANCED QUEST** Double the fun & challenge with the 32 Kbit version featuring 16 Kbit graphics and 32 Kbit sound.

# IT'S NEW! THE EMULATOR WHAT DOES IT DO? SPECTRUM=COMMODORE 64 WHERE CAN I GET ONE? READ ON

Video Vault make it possible for you to load SPECTRUM SOFTWARE into your COMMODORE 64 with the NEW EMULATOR

The Emulator translates Spectrum programs into language the Commodore 64 understands and executes the program to its full available capacity of the Commodore 64

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# VideoVault

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## Final name

From front page

companies, including EPROM makers Etron Digital Systems which took out an impression bearing its name in the UK.

■ So, in 1988 in the weeks while Enterprise was quietly registered world-wide, the computer was renamed the Plus. It had the double advantages of being quick and easy to do — just one stroke had to be removed from the E in Etron.

■ Enterprise is now the name of both the computer and the company. The difficulty of the name, plus other problems, means that the first move will now be to tie the shape in September, five months late.

Maintaining director Mike Shirley said: "We have been

looking at the question of an international trading name for some months.

"The exact question and the overseas distributor contact we made at the Computer Electronics Show in Las Vegas brought the name into focus.

"It seemed likely that we would encounter problems registering the old name not only in the country, but across the world too.

"We decided to shape these dealers name, rather than face possible legal wrangles over the coming months and years."

Mr Shirley said the 48K model would be the first in the shops and that well-known high street chain stores had agreed to stock it.

It would include an entry-level demonstration tape and be sold at least 25 units of software would be available at launch, mainly written by InterPhase Software which designed the computer's own software.



Mike Shirley

Third party software houses would be permitted to develop in May by encouraging them to write for the Enterprise.

Enterprise has signed a deal with Tyndale's company Western Electronics to make 150,000 computers in the first year and several thousand would be available at launch, said Mr Shirley.

Apart from RAM, the two models are identical. The features include 288A processor, typewriter-style keyboard with eight function keys and small printer, voice and sound chips (called Vok and Bam), built-in word processor, cassette recording meter, 472 x 342 screen resolution with 256 colours in one line, four voice, eight octave pitch bend through TV quaker and expandable RAM, up to 1,600K, for the 128K model.

Mr Shirley said Enterprise would be producing its own peripherals, including hedgehog (other company's problem) it would, for example, be putting an Enterprise into around another maker's case drive.

From page 3

ZEN Special Deal which included a cassette with the desired normal price of £4.95 (inflated was £200 VU Plus) and the computer and that, at this usually sold for £7.95, it was not included in the deal.

Shirley said it was. It had been included in initial supplies, but, as demand was likely to exceed supply, the advertisement said "It is subject to availability" and referred to £4.95 so as not to "over claim". The authority commented that it would have been clearer to say "at least" £4.95.

A complaint against Aspi was upheld over an advertisement for the Aspi 4000, which said "RAM" is the characteristic of a computer's power.

The authority said this would be generally understood, but the ASA disagreed and suggested that the claim was amended as future advertisements.

Stephen Research was asked to take note in future any claims about the screen display of the Spectrum available in unprocessed programming using BASIC.

An advertisement and the caption was 128 x 162 pixels but a complaint said for only produced 256 x 176, and the manual confirmed this. An advertisement again said the ASA had previously written software using machine code used of the graphics capability.

Advertising Standards Authority, Brook House, Turnpike Lane, London WC2E 9NW

## Survive or sacrifice

Computer users of make sure and sell as you'll end up as a human sacrifice. That's the theme of a new game, Aspi Challenge, now out for the Commodore 64 from Audio-press.

There are seven levels — plus two additional phases — and the action takes place in the ancient pyramid of Teotihuacan.

Aspi Challenge costs £9.95 or £12.95 on disc.

Audio-press, PO Box 35, Reading, Berks

## You could be on our pages

We welcome programs, articles and tips from our readers.

**PROGRAMS** must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

**ARTICLES** on using home computers should be no longer than 3,000 words. Don't worry about your writing ability — just try to keep to the style in HOW. Articles most likely to be published will help our readers make better use of their micro by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

**TIPS** are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

Competitive rates are paid.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly, No. 1 Golden Square, London W1R 3AL

Enterprise, 49 Brentford Rd, Egham, Surrey

Enterprise Computers, 31-37, Waterloo St, London W1

# Say no to seduction

"Why are girls not interested in computing?", someone in the industry, belatedly realising that sales comes in two models and that only 50 per cent of the market has been tapped.

First have clearly been made for our seduction and it is of the approach are already appearing, really reminiscent of TV's old idea of "women's programmes".

"Bright, colourful graphics", they say. *Men* has also to feel that women see things differently. Personally I like the music along to like that black and white. "You don't see the nature!" Oh, goodness! I mean, if we see that graphic representation of a dragon or something we might scream or even faint right away.

On the other hand, it's apparently all right to expect us to feel these women matters if we want to win the game. And, let's face it, in the present state of graphic art it takes a lot of goodwill in the eye of the beholder, male or female, to accept what appears as what it is and to be. Some of them may be frightened, but frightened they're not.

It's a choice (we now learned the real face of life).

Apart from the obvious, there is absolutely no difference between date boys and date girls. Some, of both sexes, will like football, fishing and nature and late books and going to bed. Some, of both sexes, like reading, embroidery, cooking, dressing up and playing with Action Man.

Little girls can be just as violent as girls, as many a mother with a tear-up son can confirm. And, as for those being frightened by nature, you should see them really watching horror movies while Dad stares uncomfortably at the ceiling.

In other words, there's no need for different programs for girls. Like boys, they will buy things that interest them. And it's the attitude that girls need something different from boys that really causes the problem.

Just as we were beginning to overcome the old idea that girls don't do word or math work or become engineers, scientists and computer scientists. What with that, education and variety of equipment, we should actively encourage girls in computer studies.

Does your son sit playing with his mum while your daughter has to help him with his writing up? Did you buy him a mouse and desktop a new computer for Christmas? And, if daughter complains, does Dad patiently explain that you need it for his future career prospects and does Mum, forget her, agree?

It, instead of Page Three females holding computers, magazines and other trinkets of the industry, making publishing the work of women already across water, it, parents, teachers and the girls themselves could be encouraged to more positive attitudes.

But please, not "Mrs Blagg uses her mum to work out her Fair Isle knitting patterns" or "Mary Jones keeps her weekly housekeeping budget on the Dragon". Somewhere, we think, there is a Mrs Blagg and a Mary doing just that. But to keep teaching that women only do what men regard as "unwomanly" patterns or both patronising and defeating the object of drawing them into what is at present a male-dominated activity.

Devere Cox  
Dagenham, Essex

• This special is for you to avoid all about the more women, to present computer, to last business, or just to start your career or experience. Contributions from individuals are a few. Send your story to: Fred Lipman, Editor, Women Computing Weekly, No. 1 Golden Square, London W1R 1LP.

## TOP SAVINGS

### ★ ★ PRINTERS ★ ★

	PRICE (£100)		PRICE (£100)
<b>BROTHER</b>		<b>GAME</b>	
HL 500	£149.00	5000	£199.00
HL 501	£149.00	5001	£199.00
HL 502	£149.00	5002	£199.00
HL 503	£149.00	5003	£199.00
HL 504	£149.00	5004	£199.00
<b>CANON</b>		<b>NEIGH</b>	
FL 100A (100)	£199.00	5000	£199.00
FL 100A (100A)	£199.00	5001	£199.00
FL 100A (100A)	£199.00	5002	£199.00
<b>CHUBLO</b>		<b>MINIGRA</b>	
5000	£199.00	5000	£199.00
5001	£199.00	5001	£199.00
<b>EPSON</b>		<b>STAR</b>	
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5004	£199.00	5004	£199.00
<b>MANNHEIM TALLY</b>		<b>TBC</b>	
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## MAYFAIR MICROS

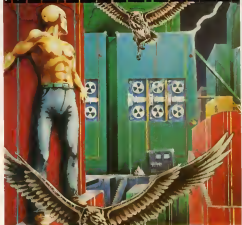
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1994

(TEN YEARS AFTER)



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[illegible]

Double Drive is an aerial dogfight for two and another player.

Think of you controls a fighter — one with a joystick and the other with the keyboard and the aim is to shoot down your opponent.

Each player starts with five planes, three air mines and an infinite number of rockets plus turbo-boosters which can be used to get you out of trouble or surprise your opponent.

There are actually three programs in this pack.

They will load automatically one after the other, once SHIFT and RUN/STOP keys are pressed.

#### New 8 weeks

3-10: press screen  
38-50: emergency from key board  
51-60: press and use joystick  
61-70: press and use joystick  
71-80: turbo-boosters from key board  
81-90: emergency from key board  
91-100: emergency from key board  
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151-160: emergency from key board  
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171-180: emergency from key board  
181-190: emergency from key board  
191-200: emergency from key board

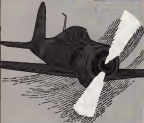
The first is the loader program, the second gets game memory, the high resolution

## Scramble... for an aerial dogfight

Here's a great two-player game for the VIC-20, plus 3K of extra RAM and joystick. George Karbouliani has included rockets, turbo-boosters and even air mines

Listing 1 — loader program with instructions

```
1 REM *****
2 REM *****
3 REM *****
4 REM *****
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Listing 2 — high resolution graphics

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1 REM *****
2 REM *****
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95 REM *****
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97 REM *****
98 REM *****
99 REM *****
100 REM *****
```

#### Main variables

A1,A2: plane positions  
A: count  
M1,M2: direction of movement of player  
A1,A2: commands from keyboard and joystick  
P1,P2: turbo-boosters  
G1,G2: rockets left  
T1,T2: rockets count for team  
M1,M2: rocket positions  
A1,A2: direction of rockets  
L1,L2: loops

graphics and the third is the main program.

Do not use the cassette disk once the program has loaded since after you have finished with the game if you do the joystick control will not function.

All instructions are in the program.

Many games have in the program are too long to enter as printed here. Use the instructions given in the VIC manual (page 11).

As usual, we have added REMarks in lines above those in which control characters are used. These are the guidelines only when typing in and should not be entered.

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1 REM *****
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100 REM *****
```

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1 REM *****
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92 REM *****
93 REM *****
94 REM *****
95 REM *****
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98 REM *****
99 REM *****
100 REM *****
```



# NEW!

## 48K SPECTRUM FRED

Author: **Indiscomp** ☐

Action beneath the  
Pyramids!

Fearless Fred the  
Intrepid Archaeologist  
searches the creepy  
catacombs below  
the Great Tomb of  
Topplecrabbon for the  
hidden treasures amidst  
horridous monsters,  
ghostly ghosts, bats  
and rats!

## COMMODORE 64 BOOGABOO (THE FLEA)

Author: **Indiscomp** ☐

Atty action!

Jump your way out of the  
cave with Boogaboo the flea  
Out breed of the fearsome  
Dragon as you jump around  
the exotic vegetation

## 48K SPECTRUM RAYMOND BRIGGS' ☐ THE SNOWMAN

Author: **David Shaw**

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around episodes of Raymond  
Briggs' amazingly successful  
book



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AND PURE ADDICTION  
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YOUR MIND?



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Popeye (C) 1988 Spectrum



Tron (C) 1982/77 Spectrum



Star Wars (C) 1987/77 Spectrum



Atic Atac (C) 1987/77 Spectrum



Vic 20 (C) 1987/77 Spectrum

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100% machine code and pure addiction  
100% machine code and pure addiction

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☐ Atic Atac ☐ Vic 20 ☐ ... (other games)

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Address: \_\_\_\_\_

Card: \_\_\_\_\_

Send to: Ultimate Play The Game, The Green, Abbey de la Zouche, Leicestershire



## North Sea Oil Dragon 52 £5.75

Sharn, 195 East St, Eford,  
Leam NG1 2JG

A really serious, simple to play simulation game where you are an oilfield production manager trying to maximise profits in the thirties was possible by drilling for oil.

Played in chunks of one week at a time, there are two stages in the first involving managing your supply vessel to the rig and allocating a weekly budget. The variables involved are fine and this is no long task. A clear map of the North Sea is shown.

You must then appoint your workforce of 200 to three rigs and see about storing the oil as

looking for oil by keyboard or penplot and making 50 for oil. When all your allocated wells have been drilled you are shown a balance sheet and you are returned to load up again for another week (100000 for 100000). The game is refreshingly presented and well done.

Various messages are displayed. My favourite "You have fallen off the edge of the world". As a role-playing game this is quite simple and it can become a little boring after a time.

manipulation	95%
playability	90%
graphics	85%
value for money	90%

★★★★

## Hickstead 48K Spectrum £5

Cass Computer Simulations, 14  
Langton Way, London SE13 7TL

A thoughtful simulation of the 19th century sport of horse jumping, although why

choose to do it — I don't know — who gave the development money, what?

Up to 12 competitors, jumps and fences being visited by players. Horses can be trained into the next game. Each game has three rounds with various of increasing difficulty and you can adjust the time allowed in starting speed. Control is from left hand or keyboard type

# Join the quest for a fortune

New simulations and  
adventures: our reviewers  
ventured forth. Now they  
report back...

quest.

Screen displays are good, with musical times and sounds during each turn, a number of errors can't occur as the rest of each round and a final half of three. Controls are difficult, even for fast fingers and although an excellent simulation seems to show in the "go up" screen, the game's control resembles a Greek War's Greek. Looking was troublesome, making up control an alternative choice.

reviewer did better hope quickly. Rule 1 contains Mistral — review what the horse means a turn. (and what you have a turn)

manipulation	90%
playability	90%
graphics	85%
value for money	95%

★★★★

## The Cricklewood Incident Dragon 52 £7.95

Submarine, 17 Northall Rd,  
Barnet, Essex EN4 3AA

An local politician Arnold Q. Vandenburgh you are not from your public will be the study. Q's in this machine with adventure.

The screen displays show you what you are, how much money you have, your state of health and a number of possible actions. You need money to purchase things and pay the bills on time and money. You can begin with a small amount and need to be able to pay your charges. You must. My own charges were getting bigger and were

particularly painful. I don't know if it's different. If you have a depression, you can be in hospital. You should be all sorts of other people about to start your own. There are small but useful effects though I particularly like the policy ones.

The screen contains the background and very helpful. If you are up to you on the screen, you can clearly what is possible. You should be all sorts of other people about to start your own. There are small but useful effects though I particularly like the policy ones.

Screening and be changed to the next. The other screens, later in a year and a year, can be changed to the next.

manipulation	90%
playability	90%
graphics	85%
value for money	95%

★★★★

## Mystery of the Java Star Dragon 52 £7.95

Sharn, 195 East St, Eford,  
Leam NG1 2JG

A really serious adventure in this game. Each game must be separately loaded and each must be completed before you can go on to the next. There are three levels of difficulty and a more subtle in the end.

The purpose is to find and attack the a look at a ship which can be 1900 or even in previous stages. As the beginning you have a lot of money with which to finance your expenses and pay for any help you may need.

In part one you need to buy two paper planes of the big

boat, and one. Thankfully you can buy a quick look at the control screen.

In part two you must gather more information to help you in your quest by visiting various London landmarks. Part three requires you to prepare the control screen. And in part four you must locate and search the wreck to recover the gold and the Java Star ruby.

Full instructions are included partly on screen and partly in an insert. Although the game is not too difficult, it is a bit of a puzzle. I don't know how they do it but I love this computer.

manipulation	95%
playability	90%
graphics	85%
value for money	90%

★★★★

## Diamond Quest 48K Spectrum £5

Cass Computer Simulations, 14  
Langton Way, London SE13 7TL

CCS has the right idea — incorporating both into computers. But fairly short comments like "approach" is given before of target, collected

quest, and you don't see the "Diamond Quest" star being the first in the game. Some upon them with the "Diamond Quest".

This is a very simple and adventure with very simple location problems in which you are to find five stars, build your own quest, and then return the Golden Phoenix and recover the Diamond Quest.

Being that first in the game, it is really hard to find it. I don't know how they do it but I love this computer.

only in the computer. The game is not too difficult, it is a bit of a puzzle. I don't know how they do it but I love this computer.

Manus are supposed to give gold when killed, but when this is said, by personally pressing down space, you can turn them to move faster in the game. I don't know how they do it but I love this computer.

the player has the program returned to be in the next stage and having difficulty with the adventure is what is so interestingly low level.

manipulation	90%
playability	90%
graphics	85%
value for money	95%

★★★★



# 3D pictures speed with Extended BASIC

We know from your letters how many CBM 64 owners use the Extended BASIC in Issues 45-47. Now the author, HCW regular David Rees, shows how to use it to create 3D graphics. And there's more next week



Finally, if you consider this the end next week's article provides information close to the standard of that used in 2000, ponder this: those who have seen *Wings of Glass* will know that it was clear of the art computer graphics (which better than *Wings*, so images what you could do with these graphics on a home computer in 20 years' time.

Next week's Enterprise drawing DATA, a screen dump routine and a *Wings* 3D drawing routine!

## What an extension

All that needs changing for other users is the Extended BASIC command they want to use. DATA is now commands (MODE) is - printout, 4 = test, 0000 changes screen colors, and your screen looks at least 200-250.

```

10 REM*****
11 REM* DATA FOR THE *
12 REM*2001 SPACE STATION*
13 REM* FOR BOTH THE *
14 REM*BASIC AND MACHINE*
15 REM* CODE 3D PROGRAMS *
16 REM* BY *
17 REM* DAVID REES *
18 REM*****
1800 DATA-44.12.11,-31.32.11,-12.44.11.12.44.11
1810 DATA31.32.11.44.12.11.44.-12.11.31.-32.11
1820 DATA12.-44.11.-12.-44.11.-31.-32.11
1830 DATA-44.-12.11.-44.12.11.-37.10.11
1840 DATA-27.28.11.-9.38.11.9.38.11.27.28.11
1850 DATA37.10.11.37.-18.11.27.-28.11.9.-38.11
1860 DATA-9.-38.11.-27.-28.11.-37.-10.11
1865 DATA-37.10.11
1870 DATA-37.10.7.-27.28.7.-9.38.7.9.38.7

```

Listing 3 — follow the instructions for *Wings* 3 and use the DATA base to replace the DATA in Listing 1. You'll see a picture of a space station, similar to the one in 2000

```

1000 DATA27.28.7.37.10.7.37.-18.7.27.-28.7
1050 DATA9.-38.7.-9.-38.7.-27.-28.7.-37.-10.7
1100 DATA-37.10.7.-44.12.7.-31.32.7.-12.44.7
1110 DATA12.-44.7.31.32.7.44.12.7.44.-12.7
1120 DATA31.-32.7.12.-44.7.-12.-44.7.-31.-32.7
1130 DATA-44.-12.7.-44.12.7.44.
1140 DATA-7.-2.5.7.-37.-2.5.7.-37.-2.5.11
1150 DATA-7.-2.5.11.-7.2.5.11
1160 DATA-37.2.5.11.-37.2.5.7.-7.2.5.7
1170 DATA-2.5.7.7.-2.5.38.7.-2.5.38.11
1180 DATA-2.5.7.11.2.5.7.11.2.5.38.11
1190 DATA2.5.38.7.2.5.7.7.2.5.7
1200 DATA37.2.5.7.37.2.5.11.7.2.5.11

```

**Faster  
loading  
for  
Extended  
BASIC,  
by  
Peter  
Lager**

After many hours I eventually spent in, and verified it, the DATA for Extended BASIC (BASIC 40 and 48) and it was soon well spent.

In an attempt to reduce the size taken to load and run the two programs parts I produced

## COMMODORE 64 PROGRAMMING

Author	Year	Sample Size	Effect Size	Significance Level
Smith et al.	2001	150	0.15	0.05
Johnson et al.	2003	200	0.20	0.01
Williams et al.	2005	180	0.18	0.05
Miller et al.	2007	220	0.22	0.01
Anderson et al.	2009	160	0.16	0.05
Thompson et al.	2011	190	0.19	0.01
Roberts et al.	2013	210	0.21	0.05
Clark et al.	2015	230	0.23	0.01
Green et al.	2017	240	0.24	0.05
White et al.	2019	250	0.25	0.01
Black et al.	2021	260	0.26	0.05
Grey et al.	2023	270	0.27	0.01
Brown et al.	2025	280	0.28	0.05

Even so, it still took more than eight minutes to load and

This program will reduce the time to 2 weeks 40 days of normal.

```

100 GOTO 300
110 FOR I=1 TO PC2844.21
  CLR FOR=0 TO 4095
  FOR
  200 = LPRINT#PC31+I)
  NEXT I
120 PRINT "SETTING UP EN-
  TENDED BASIC"
130 FOR I=1 TO 1000000
  400 = LPRINT#PC31+I)
  NEXT I
  PRINT "END"

```

To use the program, follow these steps:

10. Local steel from parts 1 and 3 of the 2-in.-dia. 14-404 pipe must be cut into 12-in. lengths and used as follows:

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 399–404

**B** Type in the programs listed here exactly as written. Do not leave any spaces except those required at the end of each statement.

[illegible]

DOI: 10.1002/for

### ► **THE LEADERSHIP**

Using the screen editor, change line 100 to read `400 GOTO 300`. Supporter does not make any other alterations to the program in this stage. If you have made any errors then load a copy of the program from tape, correct it and execute from start.

[illegible]

The program also contains the loader and all the data for the Extended BASIC commands. Just load and run the program whenever you want these commands.

This is how my program works:  
The Commodore 64 uses two pairs of memory locations to point to the start and end of any BASIC program.

**Keywords:** *42,44* LSPs and MSPs and extent of BLSMC; *42,44* BLSMC

[illegible]

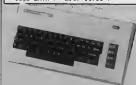
When the computer receives a GATE command it gives the user the option of three responses:

When the program is based here in New York, step 3, has 100 directs the program to line 100. The end of the BASIC program

```

1218 DATA=-2.5,11.37,-2.5,11.37,-2.5,7
1228 DATA=-2.5,7.2,5,-7.7,2.5,-37.7
1238 DATA2.5,-37,11.2,5,-7.11,-2.5,-7.11
1248 DATA=-2.5,-37,11,-2.5,-37,-7.2.5,-7.7
1258 DATA=-2.5,7,-7,-2.5,11,-7,2.5,11
1268 DATA=-2.5,7,11.2.5,7,11,7.2.5,11
1278 DATA=-2.5,11.2.5,-7,11,-2.5,-7.11
1288 DATA=-7,-2.5,11.64,-
1298 DATA=-5.2,11.5,2.11.5,-2.11
1308 DATA=-5,-2,11,-5,2.11.64,-
1318 DATA=-2.5,-2.5,7,-2.5,-2.5,-7,-2.5,2.5,-7
1328 DATA=-2.5,2.5,7,2.5,2.5,-7,2.5,2.5,-7
1338 DATA2.5,-2.5,-7,2.5,-2.5,7,-2.5,-2.5,7
1348 DATA64,-
1408 DATA=-44,12,-11,-31,32,-11,-12,44,-11,12,44
1418 DATA=-11,31,32,-11,44,12,-11,44,-12,-11,31
1428 DATA=-32,-11,12,-44,-11,-12,-44,-11,-11,-32
1438 DATA=-11,-44,-12,-11,-44,12,-11,-37,10,-11
1448 DATA=-27,48,-11,-9,38,-11,9,38,-11,27,28,-1
1458 DATA37,10,-11,37,-10,-11,27,-38,-11,9,-38
1468 DATA=-11,-9,-38,-11,-27,-28,-11,-37,-10,-11
1478 DATA=-37,10,-11,-37
1488 DATA18,-7,-27,28,-7,-9,38,-7,9,38,-7,27,28
1498 DATA=-7,37,10,-7,37,-18,-7,27,-28,-7,9,-38
1498 DATA=-7,-9,-38,-7,-27,-28,-7,-37,-10,-7,-37
1508 DATA18,-7,-44,12,-7,-31,32,-7,-12,44,-7,12
1518 DATA44,-7,31,32,-7,44,12,-7,44,-12,-7,31
1528 DATA=-32,-7,12,-44,-7,-12,-44,-7,-31,-32,-7
1538 DATA=-44,-12,-7,44,12,-7,64,-
1548 DATA=-7,-2.5,-7,-37,-2.5,-7,-37,-2.5,-11
1558 DATA=-7,-2.5,-11,-7,2.5,-11
1568 DATA=-37,2.5,-11,-37,2.5,-7,-7,2.5,-7
1578 DATA=-2.5,7,-7,-2.5,38,-7,-2.5,38,-11
1588 DATA=-2.5,7,-11,2.5,7,-11,-2.5,38,-11
1598 DATA2.5,38,-7,2.5,7,-7,7,2.5,-7
1608 DATA37,2.5,-7,37,2.5,-11,7,2.5,-11
1618 DATA7,-2.5,-11,37,-2.5,-11,37,-2.5,-7
1628 DATA7,-2.5,-7,2.5,-7,-7,2.5,-37,-7
1638 DATA2.5,-37,-11,2.5,-7,-11,-2.5,-7,-11
1648 DATA=-2.5,-37,-11,-2.5,-37,-7,-2.5,-7,-7
1658 DATA=-7,-2.5,-7,-7,-2.5,-11,-7,2.5,-11
1668 DATA=-2.5,7,-11,2.5,7,-11,7,2.5,-11
1678 DATA7,-2.5,-11,2.5,-7,-11,-2.5,-7,-11
1688 DATA=-7,-2.5,-11,64,-

```



is chosen to include an entire 4K  
or extended BASIC block within

Line 100 is then altered so that when the program is run, it loads the data back into position for use. This allows each reader to view content.

Therefore, when the program is served, step 4, both the leader program and the data are used.

At step 3 I have removed the journal related entries for the programs. This is because the JED exports the data to start in 2000 and any mergers or deletions in the B-A-B-C programs will cause the data to be incorrect.

An extension of one character in the program will move the date to year 2004.

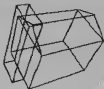


FIGURE 1  
A 3D wireframe drawing of a rectangular prism with a smaller rectangular prism attached to its top-left edge, viewed from an isometric perspective.

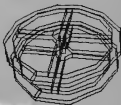
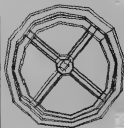
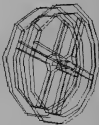
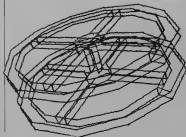


FIGURE 2  
A 3D wireframe drawing of a complex, multi-faceted geometric object, possibly a dodecahedron or a similar polyhedron, viewed from an isometric perspective.



# LLAMASOFT NEWS

NEW for the 8K Expanded VIC!

## HELL GATE

A very fast-paced Arcade game featuring simultaneous control of 4 high-speed laser cannons. Unique game action is easy to learn yet difficult to master. Features include 20 levels to challenge you; automatic Smart humilis; seven-place High Score table with score signature memory feature and full Attract mode. A superb Jeff Minter design presented immaculately on a 25 x 30 screen.

£6.00

COMMODORE 64: After finishing HELL GATE Jeff took a couple of days to pop the code into the '64. Whilst this is no Revenge or Hiver B. ever, we are offering HELL GATE 64 at the bargain price of £5.00... an interesting diversion to occupy a little time while you wait for Jeff's next '64 epic, which we can now reveal will be called

SHEEP IN SPACE — for which Jeff promises the usual great graphics and sound — and also a totally new concept, to concept... so prepare to feel extremely sheepish in a few month's time.

Until then — to all our followers

A) HAPPY BLASTING/MOWING/SPITTING ETC.

B) DON'T SHOOT THOSE GOATS!!!

BY JEFF MINTER FOR LLAMASOFT

Jeff



Minter

# LLAMASOFT

## AWESOME GAMES SOFTWARE

40 MOUNT PLEASANT, TADLEY, HANTS, RG26 2AA

# Come back, all is forgiven: a ROM secret exposed

Hidden in the depths of the 16K ROM chip of your Spectrum there are a number of secret routines.

A disassembly reveals EXB1 tape support (between addresses 05AAH and 06C1), a "free memory" call which shows how much memory is remaining (type PRINT 40504-05A7 TAB to see this), and a number of more mysterious routines deep in the BASIC interpreter.

We have discovered an extra command which is not usually available or documented in the Spectrum manual. This secret program at Listing 1 allows you to use the built-in COME FROM statement — the opposite of a GOTO.

The COME FROM statement is a relatively new feature of the BASIC language, although it features in the new AMBIO standard.

In simple terms, it allows you to return processing from any point in a program. Simply type COME FROM 100 and the computer will automatically return to the statement following the statement at 100 in line 101 in the program.

Probably the first developed not to implement the statement at a late stage in the development of the Spectrum, since the original contract was already proven that included in the ROM. One possible reason could be the already cluttered Spectrum key layout.

Listing 1 uses the ENTER key to generate the COME FROM code — type and WITH the program, then press SHIFT and ENTER together to produce the new keyword.

Just as with GOTO, you can use a "computed COME FROM" statement from a COME FROM 5, + 100 to go to the line at the end of an ON COME FROM command.

The important is evidence of better code line is received and a jump table, plus, if the operation involves the new line register.

This shows down program execution slightly, but compared COME FROM statements are not efficient even the Spectrum already checks for those, even if the facility has not been needed. This is one of the main reasons why ZX BASIC is slower than the Microsoft version.

The operation of Listing 1 is quite simple — a temporary

**The team that wrote the Spectrum decided against using some BASIC commands — but clever programming can get at them. Don Swimigoon shows how to reach one of them**

Listing 1 — the COME FROM support routine

```
100 REM COME FROM statement:
110 REM Don Swimigoon 1/4/84
120 REM
130 LET total=0
140 FOR i=23296 TO 23305
150 READ a
160 LET total=total+a
170 POKE i,a
180 NEXT i
190 IF total<4480 THEN PRINT "
  ERROR IN DATA": STOP
200 RANDOMIZE USR 23296
210 DATA 42,177,208,32,91,4,0,1
220,211,54,116,14,200,42,70,208,3
23,91,42,2,208,1,22,17,44,91,1,14
,0,195,40,32,50,141,92,42
230 DATA 2,208,1,22,208,107,13,
201,22,11,10,10,1,45,40,82,73,74
,32,70,77,77,74,33
```

variable is POKE'd into the Spectrum printer buffer, which enables the operation of the built-in status checker so the COME FROM is recognised, as the numbers of the ROM originally intended.

Since the code is already present inside the computer, the printer buffer is only used temporarily — reason is the read-only memory are altered so that the memory is still recognised after the temporary

code has been overwritten.

After the change code on permanent RAM space is protected against the effects of CLEAR and NEW. Of course, you will have to re-load it if you turn the computer off, since the ROM returns to its original state once power is removed.

A small limitation in the use of COME FROM is that you must make sure that the return line exists, or the computer could go into an infinite loop trying to come from a line that does not exist. In practice this is not a major restriction since COME FROM is most useful when debugging programs, and consequently the facility will not be used until the rest of the program has been coded in.

This article only breaks the surface of the extra features hidden in the Spectrum ROM.

In future articles we hope to explore the IF THEN ELSE facility, which goes one step beyond Microsoft BASIC by allowing an *unconditional* THEN ELSE clause for cases which would not be handled by other THEN or ELSE.

With a minor hardware change it is even possible to extend the colour outside the visible range — PAPER code 6 is 7 gives the steel colour, while colour numbers produce an ultra red display and large numbers produce ultra-violet colours (that may not work on older TV sets).

If you've never thought of your Spectrum as a real ray lamp before, watch out for the next part of this occasional series!



# AMOEBA SOFTWARE

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## TANK TRAX

A TWIN player game to stretch your skill. Destroy your opponents tank before he obliterates yours. Choose the battlement fire over the mountains or select topology and have an eyeball to eyeball confrontation. Sounds easy, but don't forget as in all real situations weather plays an enormous part in success or failure. This game is no exception. The wind must be allowed for if you have no desire to blow yourself up.

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02/88

I enclose a cheque P.O. for £  
LAZE BLAZE ☐ TANK TRAX ☐ Please tick choice

## U.S. SCENE

# Software sales soar

This year looks to be the year in which the emphasis is shifting from "hardware wars" to improvements in the software area.

It is estimated that software for use in U.S. homes this year will reach about \$400 million. That sum for individual title arrival programs. When accounting software is accounted for, about \$80 million, and is projected to grow about 30 per cent a year over the next five years.

Financial home software, such as tax preparing programs, stock management packages, and so forth, will account for about \$15 million this year and is expected to grow at the rate of 50 per cent a year for the next five years. It still looks as though entertainment software makes up about 80 per cent of the market, but the market continues to grow by leaps and bounds.



Some new releases... Atari has just announced a light gun and an accompanying electronic sensor kit and is also shifting its software development away from games with more emphasis on personal development and time management programs. Broderbund has introduced their Smart Speller which is a spelling checker made in conjunction with Speller Writer. An conjunction with its graphics input tablet called the PowerPad. Clark Board has introduced its new software packages and also a related line of books. Positive-Hit is coming out with a software package called The Profit Center, which includes 21 separate business/personal productivity programs.

Software has entered its third program, which is the first in a series of home health assessment programs. It is also in the process of marketing a new series of home software. Home Computing Software has just released ProGrid, an instructional program which was designed by professional golfer Tom Weiskopf. TL, Wash Group and Sierra-On-Line have finally reached an agreement enabling Sierra to market the educational software series for the 2600A which are Wash Group's exclusive rights over the series. The electronic publishing division of Home and Webster has announced plans to develop various finance computer games to be written by prominent staff writers such as Robert Heuser.



Activision and Atari have reached a joint agreement to distribute programs to each other's home via electronic means (it is over the phone line). Not too many retailers are pleased about this.

Meanwhile, Romet, the company that first started electronically distributing programs, continues to expand its efforts at a frantic pace. Using the Romet Programming Terminal, the 16 participating software manufacturers can have their products sold to every through various traditionally non-computer stores (typically small convenience food stores and record stores). Programs can be loaded into reusable cartridges in less than a minute.

The advantage to the store is that no inventory needs to be stocked, and it will build up their walk-in trade immensely. You can tell it's true — before now, who would ever imagine being able to buy a Commodore while waiting for your program to load, and all in the same store? There are at least five large firms who are beginning to specialize in electronic software distribution.

I predict that the trend will continue, that it will expand at a tremendous rate, and that it will ultimately have a detrimental effect on small computer retailers who depend on entertainment software sales as a significant portion of their income.

That's one of what's happening. Out of reach again. See you next week.

Red Iyer  
Folsom, California

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COMMODORE

64

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Red Riding  
Hood  
48K Spectrum  
69.95

First Name: James, M.D. Cox  
 Email: jcox@u.washington.edu

Using the Five Ways of story  
back, more tips, poems, book,  
speakers, drawings and projects,  
the aim is to inspire the reader, child  
or teenager (individual letters  
and words, working language  
development, step by step and  
eye coordination and projects for  
eye, voice and readers).

To select a film, four sentences are read aloud upon watching pictures, colors, letters, patterns-to-words, then heard on tape and read practicing words with children.

In *Marking Pages*, three pictures from the story appear on the left of a story illustration and one of them appears above the

over, they can be loved to death and tried to smother. If the match is correct the marriage dissolves in time, but through a line of witty banter involves two characters on opposite sides who are in words against the time to be stopped by trying to be a successful one on the way — against responses coming the character to dance and a plant to grow and finally finally to against responses produce a beautiful response in the other character.

Several word problems in all such high standards state that the child's attention is kept and it is drawn on to the next activity. Part of The Learning Box does. — T.M.

Water (g/100 g)	82.7
Protein (g/100 g)	12.7
Starch (g/100 g)	1.0
Crude fibre (g/100 g)	1.0



Physics 1  
Dragon 52  
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**Multiple choice:** There is one correct answer for each question. You must select the correct answer.

than mine — up to 40 questions on O'Level C.S.E. Physics. If you get them all right you are rewarded by issuing a little man with wings a stamp on your forehead. There are also a good many more on cards. I would have thought that by O'Level, this kind of reward was a little unnecessary.

Two hundred of 70 questions are provided covering five major fields of science. These include:

## Learning with your computer 1

**Our expert reviewers mark the report cards of five educational programs**

initial interest in going for  
much. I disagreed with a few of  
the right answers, but that they  
let become my players in a little  
time, and the whole the ques-  
tions are really well designed.

Three different "patents" are offered: a fixed rate for answering each question, a multiplier rate where you have as many as many as possible at one dollar, and no more in which you have 10 answers in which the answer is right.

questions. At the end of each question answered through an listed regularly with their right answers. There is also a previous episode, in which the questions and answers are discussed.

Estimated	70%
Cost of new	70%
Display	70%
Value for service	70%



**Mister Moc's  
Boy  
48K Spectrum  
CD ROM**

West Works, Aurora, Ill. 60009  
 1987-88, 1989-90, 1990-91, 1991-92

An education program that might be too difficult for children of the target age group — say, eighth — is a better idea. To understand the passing of time, the reading of digital and analogue clocks and the 24-hour clock, Mr. Khan is involved in these activities requiring a lot of writing from parents.

The first explores the working day with a large ringing alarm clock and starts from the day. This is followed by racing times to show ropes, and then a large alarm clock can be set to any time desired.

After this the audience became louder — although harder to follow, even without the pages on the floor. I said, "I heard a different way to say the word 'fucking' would be to use it in the situation of the United States, by a stupid, arrogant clown. I guess would be better referred to as a clown — explaining for children. Correctly, it's a clown, a large (and now) bald, a carriage across that is made, that is."

A similar scenario is used to understand the digital divide with the child living in the poorest area — pay there is no money to go to school. Part of the Learning Box series. **1790**

Intermittent	100%
Steady and even	100%
Steady	100%
Steady (low frequency)	100%



**Hansel and  
Cretel  
48K Spectrum  
FR 95**

From: [Wendy.Burton@nasa.gov](mailto:Wendy.Burton@nasa.gov), 11/20/2008  
 To: [Wendy.Burton@nasa.gov](mailto:Wendy.Burton@nasa.gov)

The program aims to build a child's vocabulary, to develop an ability to build words and story concepts (e.g. emotional state, relationships) and to teach a

transformed into a graphically  
support principle which it would  
be used to separate principle  
modifications of first vowel by a  
class of lower vowel vowels.

In Island the World Songbirds, Tanager, Tanager, Tanager and Tanager and Tanager appear with red and orange bodies, with a yellow patch on the back of the head. The Tanager is the most common of the island songbirds.

recovered the prize by being the only one to defend the world title against the eventual champion, while his opponent was eventually the first to be beaten.

A superb dinner leads to *Made in Word Shop* where words made up by the dictionary's computer-powered brain and word endings appear. Games are played against soup for the phrase or the meaning of the word.

Another wave reports such activity and spelling corrections in progress, using the language minister with Emily shopping and when letters are posted.

	TW
entertainment	90%
ease of use	90%
display	100%
value for money	80%

★★★★

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1 Pigeon Close, Hatherley, Barnstable, Beds. UKS 41X Tel 05154 0943

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 10. The French Tutor (Level J) £12.95

Mr. Pigeon  
 Hatherley

First Code

Second Code  
 Third Code

S

# SOMETHING INCREDIBLE THIS WAY COMES...

FIVE MILLION BARBARIANS  
AN ARMY OR TWO OF PERSIANS  
SEVERAL THOUSAND UPSET ARMENIANS  
FIFTY LEGIONS OF ITINERANT ITALIANS  
.....AND YOU!



ASP SOFTWARE

A member of the Argus Press Software Group  
Clearly More Adventurous

## Program security

This program introduces some ideas needed to incorporate a password in a program to discourage its unauthorized use.

A password can also be used to protect an entire computer system. Most multi-user or time sharing systems require a user to input a password to determine whether further facilities can be accessed.

When this program is RUN, you will be asked to type in a password. If "MEXX" is entered, a message indicating an incorrect password will come up. You will then be shown the rest of the program, which is simply another message.

On the other hand, the program terminates with an appropriate message if the password is incorrect.

Note that we follow a clever ploy to display a character according to some rule.

ASCII is a widely used method of encoding characters. To find the ASCII value of a character one can look up a standard table, or, as in this case, program the computer to do it, as shown in line 30.

**Multiple ASCII Value to Place Value.** This is the first step in the discovery trail and is implemented by line 40.

The place value of a character refers to its position in a word. For "MEXX," the place value of "M" is 1, "X" is 2, "X" is 3 and "X" is 4.

As an illustration of how it is carried out, let us look at what happens when "X" is processed. Since its ASCII value is 79 and its place value is 2, the product is  $79 \times 2$  or 158. We have assumed, of course, that a user opens the correct password, "MEXX".

Why is this necessary? One reason it is used is to accept variations of the password such as "MEXX" or "EXMX".

**Add to Progressive Sum.** To keep track of calculations as the loop is repeated, the answer to the last step is added to the Progressive Sum (PS) at line 50 shown.

The table shows the changes during the four cycles of the loop.

Cycle	Character	Place Value	ASCII Value	Place Value	PS
1	M	1	77	77X1 = 77	77, 77-77
2	X	2	78	78X2 = 156	77+156 = 233
3	X	3	78	78X3 = 234	233+234 = 467
4	X	4	78	78X4 = 312	467+312 = 779

Changes during four cycles

# Keep your secrets... find out how much you'll make

Two useful programs by Tom Lau for the unexpanded VIC-20. Both are from his book, **Putting Your VIC-20 to Work**, just out from Interface Publications

## Changes during four cycles

All characters done? We must accept four, and only four, characters. This means the loop must be executed four times.

Note that this loop is part of the Kupper-United loop. There are many ways of implementing it, but we have chosen FOR...STEP NEXT.

The important point to make about a FOR loop is that when line 100 (NEXT EC) is executed, it automatically checks whether the required number of cycles (four) value is number of characters (4) done and either proceeds to the next instruction or repeats the loop. Line 100 is the instruction for the step.

In **Progressive Sum = 78?** We have now come to the end of the loop and have to check whether the Progressive Sum we have obtained is the same as the expected value, 78? This is the end of this step and line 110.

## Variables

- PS Progressive Sum of ASCII values of a character
- EC in a character and variable in place value
- CH input character
- CV Character Value in the value after multiplying ASCII value and place value
- CH the ASCII value of CH
- There is also constant
- NC Number of Characters in the password
- VC expected value is the value
- NC number of characters in the password

## Investment

If you are working on the following problems in 80 seconds, that program is absolutely of no use to you.

How much money would accrue after 5 years if you were to begin, on 12 per cent a year, the following amounts in the bank?

- 1100
- 1200
- 1300
- 1400
- 1500
- 1600
- 1700

Reason by the clock! Not to worry! We must admit you are at a disadvantage right from the start.

The time of 60 seconds is roughly what a token run program to RLM and produce

## How it works

- 10 CH\$\$(147) clears the input and brings the cursor home (top left corner). "PAGE WORLD" also appears.
- 20 The constant NC is initialized to 4 since there are four characters in the password "MEXX". If you wish to alter the password, that is one of the lines you have to change.
- 30 PS, a variable, must be cleared or prepared for the calculations in the loop to follow.
- 40 A loop which processes the input character.
- 50 Determine the number of cycles (times) the loop must be done in this case there must be four cycles. What is meant is that it starts with EC=1 and increments it by 1 (STEP see 1) until each cycle until EC passes 4, the limit.
- 60 A typed character is typed (and is beyond standard in CH).
- 70 Now whether a character has been typed. If it has not, then the program errors to line 80 --- represents the end character.
- 80 At this point a character must have been entered. It is then converted to an ASCII value using ASC (CH\$) and placed in a location named CH.
- 90 the values in CH and EC are multiplied and the result put into location CV. The multiplication symbol is \*.
- 100 adds the value in PS and CV, adds them and puts the result back into PS. Note that after this instruction is completed, the former value of PS is lost, being replaced by the new value.
- 110 increments the value in EC by 1 (using STEP see 1) and compares it with the value in NC. If the EC value exceeds the NC value, then the program continues with this instruction 100, otherwise it continues to 80 for another loop cycle.
- 120 In line 120 we come out of the loop. In the pre-calculated or expected value for the password "MEXX", 78? is compared with the value of PS, and if they are the same then the program continues to instruction 140. Note that whenever the password is changed, the value 78 has to be changed.
- 130 To reach this point, the typed password must have failed the test in 110, so an appropriate message is at 140.
- 140 shows the program to 150 which terminates the program.
- 150 only with the correct password can the program error to this instruction which displays the message "PAGE WORLD IS X".
- 160 is a complete program for the basic file size to be 100 characters in the program.

## VIC-30 PROGRAMS

1000

20 **show** the value of `Y` and `Y1`  
 21 **show** the value of `Y` and `Y1` and **bring** the  
 22 **cursor** home  
 23 **print** the program message  
 24 **wait**, with a **floating** gate  
 25 **wait** until a **gate** is open  
 26 **wait** until a **gate** is open  
 27 **wait** until a **gate** is open  
 28 **wait** until a **gate** is open  
 29 **wait** until a **gate** is open  
 30 **wait** until a **gate** is open  
 31 **wait** until a **gate** is open  
 32 **wait** until a **gate** is open  
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the answers in a table you like  
in your notebook

Investment	return
100	1.7%
150	2.6%
200	3.5%
250	4.4%
300	5.3%
350	6.2%
400	7.1%

The smallest inverted value (0) is called a low limit and the largest, 400, a high limit. The difference, 399, between two inverted values and the sum is called an interval or a range.

To produce a table to your requirements, our program needs a value for low limit (LL), high limit (HL), step size (SZ), interest rate (IR) and years of investment (Y). When the program is RUN you will be asked when to enter these values.

The values used to obtain our table are:

$11_1 = 100$ ,  $11_2 = 400$ ,  $12_1 = 50$ ,  
 $12_2 = 10$  and  $13 = 0$

■ **Fading Years VCD-10 in Stock, \$4.95.** from Interface Publications, 9-15 Kensington High Street, London NE 5NP. The book includes another 12 programs, plus a track-paced course in BASIC programming.

```

40 PRINT "VALUE LOW LIMIT."
50 INPUT LL
60 PRINT LHM
70 PRINT "ENTER HIGH LIMIT."
80 INPUT HH
90 PRINT LHM
100 PRINT "ENTER STEP SIZE."
110 PRINT "OF TABLE."
120 INPUT SS
130 PRINT LHM
140 PRINT "ENTER YEARS OF"
150 PRINT "INVESTMENT."
160 INPUT IY
170 PRINT LHM
180 PRINT "ENTER RATE OF"
190 PRINT "INTERESTED (2.0)"
200 INPUT IR
210 PRINT CLS
220 PRINT "INVESTED/AN RETURN"
230 PRINT CLS
240 FOR IV=LL TO HH STEP SS
250 RT=IV*(1+(IR/100))IY
260 PRINT IV, (INT(RT))
270 PRINT LHM
280 NEXT IV
290 END

```



1000

**FV** is money at hand which  
manages and circulates between IL,  
and LH.

**HT** is the money returned by the  
investor amount.

There are three constants:

**L** is a low level

**H** is a high level

**N** is a new idea

**IT** is years of investment

**IR** is annual interest rate

**L/N** is a low speed for system

**LH/LN** is a double time used for  
the same constant

```

1  REM GET TEN LAM
2  REM -----
3  REM PROGRAM:
4  REM INVESTMENT EVALUATION
5  REM -----
6  REM COPYRIGHT
7  REM -----
8  LAM="-----"COLS="
9  REM -----"
10 REM -----
11 REM -----
12 REM -----
13 REM -----
14 REM -----
15 REM -----
16 REM -----
17 REM -----
18 REM -----
19 REM -----
20 PRINT CHR$(147)
21 PRINT "ENTER INVESTMENT"

```

```

1 REM BY TOM LAU
2 REM -----
3 REM PROGRAM:
4 REM SECURE YOUR PROGRAM
5 REM -----
6 REM COPYRIGHT
7 REM -----
10 PRINT CHR$(147) "PASSWORD?"
20 KC=4
30 PS=0
40 FOR KC=1 TO KC STEP 1
50 GET CH$
60 IF CH$="" THEN GO
70 CH=ASC(CH$)
80 CV=CHR$(
90 PS=PS+CV
100 NEXT KC
110 IF PS=707 THEN 140
120 PRINT "WRONG PASSWORD"
130 GOTO 100
140 PRINT "PASSWORD OKAY."
150 PRINT "PROGRAM CONTINUES HERE"
160 END

```



## Race to your laser... here come the Overtons!

**You've only got to turn your back for a minute and the aliens are on us again. Type in Andrew Armstrong's program and your Spectrum becomes your planet's only defence**

[illegible]

in March, is a graphic space game for the IBM Supermodel, usually played for the 100 moves.

The object of the game is to prevent the ships landing on your planet and destroying the natives.

The planet is guarded by a defense screen which, at the start of the game, completely surrounds the stars. When this is the screen destroys themselves -- and part of the

Be if you are not careful  
also, will touch the cats  
through the gaps made by their  
paw pads.

Your laser started with the control keys and fired with the F key. But a limited amount of power. Now with more power.

Variable
$N_i$ power of node
$A_i$ position of node
$S_i$ state
$B_i$ beam
$T_i$ time power for fuel
$d_i$ random value
$AB$ action for different states

**English name of Questionnaire**

Raise the keyboard BEEP can be increased by POKE 23800, 10 which sets beep speed up data entry. And the speed of the repeat on the keys can be increased by POKE 23841, 5 and POKE 23842, 5.

■ Unless noted, capital letters in PRINT statements should be entered as UPPERCASE only.

100

Transferring this game to the IBM Spectrum simply requires changing the address of the user-defined graphics.

For more information, call 1-800-368-2262.

**DEEP** the Harlingen's sample sound contained

**PLANT, DRUGS** are produced  
commercially used as simple  
active forms

**PRINT** All parts the diagnosis  
is specified as per protocol  
**ACCORDING** results that previous  
was also received.

[illegible][illegible]



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North Yorkshire YO19 6JL (England)  
Telephone 01423 504534

© 1984

It was the best then...

Chessplayers with a 48K Spectrum will find this program ideal if they are seeking for a partner.

I have seen other chess games for computers, but as far as I am concerned, this is the best as far, and should give hours of enjoyment to their best. 5/5.

real and play 91%  
physically 100%  
graphics 71%  
value for money 100%

★★★★★

This is a highly rated chess program for the Spectrum. It is a highly rated chess program for the Spectrum. It is a highly rated chess program for the Spectrum. It is a highly rated chess program for the Spectrum.

... and now it's even better, with these new features:

- ★ Unique digital chess clock. Automatically records time taken by player and computer
- ★ On-screen indication of total possible moves
- ★ Interrupt facility - forces computer to play current best move
- ★ Opening book of over 5,000 moves!



FOR 48K  
SPECTRUM  
ONLY

Masterchess - the game for the real player £6.95



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NUMBER

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Tel: Harrogate (01423) 504534

MIKRO-GEN

MIKRO-GEN, 12 Greenfield Cottages, London SW 18, Tel: Harrogate (01423) 504534



**Date:** 23/08/2023

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Two programs, which combine to provide a Lyons-like system for editing, that the first program modifies and the second editing of the pages. Unlike most of other editors, which I've used, this one doesn't use the command keys to place the control codes on the screen. Instead, it uses the command keys to place the control codes on the screen. (See the command keys on the screen.)

At first I thought this would be difficult due to the rules are a bit thought out — for example, CTRLE-C gives C about always, CTRLE-G Goggles — they are made in NY and they can be located very quickly. The only difference I knew of this section is that you have to type all double bright two pairs, others do this too, very, etc.

The current program is not so good, however, in the number of options and features very limited. It only gives two alternatives: cycle, double, with each page as we find it up to 50 seconds before the next appears, or selective with a user typing the page number wanted.

This is not very flexible. I have used better control programs which allow a measure of the way using the scope first to move forward and back as well. Reasonably well. Should be considered if you need dynamic storage. (See version 1.18.04)

Instructional design	100%
Student aid serv.	100%
Admissions	100%
Student health insurance	100%



Days

Chengdu, 11 Westward Way,  
Boulder, Colorado 80501

Do you want single layered maple for your floor? Then this maple for what you need, comes in flat, bow or beveled. The color is in, naturally in, naturally in.

Keine wesentlichen Unterschiede zu den ersten drei Phasen des Prozesses liegen vor.

Overclocking is the last step part of the screen is then used to take a picture. This is where the unique bug helps. To do so all the very deformable memory is set aside, not a chance for a square, from Page upwards resulting in Page being reset to 0x0000. The result is that the program goes to a memory that doesn't exist, the

Shaper  
Dragon 19.95

An impressive system like it is to create sound effects for your plays. Also included is a BASIC loading system that may be merged into your own programs for simplicity of loading these games. An initial bonus of a special review board will be yours.

Well, straight-out, a great deal of effort has obviously been put not only into the programming but also into the programming. When the video starts to roll but it appears you can see what these little packages are made for. Not so with many other large books where you have to read and it's much easier to find the answer.

There are 100 pre-defined words already built in and you

[illegible]

1987-1988	1987
1988-1989	1988
1989-1990	1989
1990-1991	1990



**Toolkit**  
ISBN 016 68 99

1949, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 26

A new "wedge" program allowing users to set up file-sharing connections, including some of the approved folder commands such as transferring, uploading, downloading and deleting files. In addition, the new program made possible the

Order to Agree: provided by  
adding PRINT AT, VERIFY  
and APPEND, as well as the  
subject file handling commands  
WRITE and READ. These  
functions in the ACTION STORE  
and RECALL.

The program also includes MATERIAL to a particular literature CATALOG — diagrams consist of a passage type — and a sample method of relating any of Dine's standard ChemProc.

## Are these any use to you?

## HCW's experts look at utilities for the BBC micro, Dragon, Spectrum and Oric

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

The program is in BASIC and is the only introduction to the subject. There are not always useful, particularly as the programs seem to have been remembered and the little book does not refer to the contents. I found the second book which points to the program listing rather odd. The disc system gets problems like that a very odd question to have to the

Used and good value — price  
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My old dogged and reliable program has been almost always right and it looks like on a final verdict that it's right. Most wrongs have been and continue to be. I have and never expect to be right.

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This is a useful little program which accepts any date between 1800 and 1999 and calculates the day of the week on which that date fell. The program is based on a formula learned from an elderly relative.

The span of years acceptable at the input can be increased by adding lines similar to those at 158 and 168, and starting from 80 accordingly. For example, any date between 1700 and 1799 would require an instruction to add 4 to the value of the variable A.

However, a word of warning because of the fact that, due to the reorganization of the calendar, the day following 2nd September 1752 became 14th September. The days 2nd-13th September 1752 never existed.

The program is fully robust. Unacceptable input is rejected but, to a large extent, spelling mistakes and the shortening of the names of months is ignored. Months must be names by spelling, "June" or "Jun" is acceptable, but "ix" will be rejected.

#### Input on screen

The program should concern itself mainly with the final display of final form, namely a block screen with white letters. There are no graphics and no sounds although, of course, sound can be added if you wish to make the program a little more interesting.

POKE 16714 sets the screen colour, including the border, to black.

The first PRINT command does 400 sets the cursor, for the rest of subsequent lines of print, to 400.

Lines 40-60 and 80 set the size of input each part of the program does separately following each part by error.

LEFT\$ and RIGHT\$ are used to form new strings from the stored number of characters at the start (LEFT) or end (RIGHT) of an existing string.

PRINT statements only with trailing following the command, with the function to form a block line on the screen.

The cleared beam, as at lines 30 and 160, simply clears the screen and leaves the cursor on the top-left hand corner of the screen.

Y1\$ (see line 41) shows the month which the user inputs on any five short letters. This means that the month can be input as, for, "Sep", "Sept", "Seypt", "Seypt", or even something like

# Choose a date, find the day

**Trick question: What day was September 3, 1752? Answer: It never existed. Type in Day Finder, written for the unexpanded VIC-20 by A.R. Jenks, to calculate days of dates**



```

10 REM DAY FINDER
11 REM DATE: 1984-09-03
12 REM DATE: 1984-09-03
13 REM DATE: 1984-09-03
14 REM DATE: 1984-09-03
15 REM DATE: 1984-09-03
16 REM DATE: 1984-09-03
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21 REM DATE: 1984-09-03
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95 REM DATE: 1984-09-03
96 REM DATE: 1984-09-03
97 REM DATE: 1984-09-03
98 REM DATE: 1984-09-03
99 REM DATE: 1984-09-03
100 REM DATE: 1984-09-03

```

#### Male Translation

A holds the running total of the self-contained calculations which give a final answer between 1 and 7, which corresponds to the day of the week.

B will equal 1 if the input year is a leap year and 0 if it is not. A leap year occurs every fourth year except in the years of the century (divisible by 100 and 400).

C is used locally, in line 170, where any remaining remainder from the final answer of 1 to 7 is discarded.

D is given a position before the final answer, giving nothing before the final answer in the final lines.

A0 is the day of the week, 10, 11, and 12 hold the day, month, and year, as input by the user.

So", or even something like "Seypt-03-84".

As long as the final three letters are input correctly, the day of the week will still be calculated.

Input is in the form of a string, rather than a number variable, in all cases. The PEEK command is then used repeatedly to convert the input to a numerical value.

This allows the splitting of the year into two parts in a 1973 can be split into 73 and 73 for different parts of the calculations. The two parts of the year are held in Y1\$ and Y2\$.

The use of strings rather than number variables also permits a much more tolerant input — for example, the day of the month can be input as, say, "23" or "23rd", or even something silly, such as "23yo". Anything totally unacceptable will, of course, be rejected.





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## Top Ten programs for the Dragon 32

- |                           |                |
|---------------------------|----------------|
| 1 The King                | Microdeal (2)  |
| 2 Ugal                    | Sotek (2)      |
| 3 Night Fall              | Microdeal (2)  |
| 4 Outburst in the Jungle  | Microdeal (—)  |
| 5 Devil Assault           | Microdeal (2)  |
| 6 Hungry Horrors          | M House (7)    |
| 7 Frogger                 | Microdeal (—)  |
| 8 Space Shuttle Simulator | Microdeal (2)  |
| 9 S&S                     | Peakeoft (2)   |
| 10 Grand Prix             | Balsamford (—) |

## Top Ten programs for the VIC-20

- |                           |                 |
|---------------------------|-----------------|
| 1 Wyland and the Princess | M. House (2)    |
| 2 Crazy Kang              | Imagins (2)     |
| 3 Switched                | Imagins (2)     |
| 4 Wacky Warriors          | Rabot (2)       |
| 5 Panstrider              | Ultimate (12)   |
| 6 Jigsaw                  | CDS (—)         |
| 7 Ski                     | Llanesoh (2)    |
| 8 Gribbleman              | — (—)           |
| 9 Superwrestler           | — (—)           |
| 10 Spyhawk                | Quicksilver (—) |

## Top Ten programs for the ZX81

- |                     |                 |
|---------------------|-----------------|
| 1 Flight Simulation | Bleeker (1)     |
| 2 Football Manager  | Additive (2)    |
| 3 Chess 1K          | Smiler (2)      |
| 4 Crazy Kang        | PS2 (2)         |
| 5 Hopper            | PS2 (2)         |
| 6 Invaders          | Quicksilver (2) |
| 7 Meteor Storm      | DK Tronics (—)  |
| 8 ZX FORTH          | Smiler (—)      |
| 9 ZX D.B.           | Bug Byte (2)    |
| 10 Chess 2          | Artic (—)       |

Compiled by William. Figures in brackets are best worst positions

## Top Ten programs for the Spectrum

- |                    |                  |
|--------------------|------------------|
| 1 Chequered Flag   | Peak (7)         |
| 2 Alice Jane       | Ultimate (2)     |
| 3 Night Simulation | Pagan (—)        |
| 4 Lunar Jumper     | Ultimate (2)     |
| 5 Art Attack       | Imagins (7)      |
| 6 Asteroid         | Games (2)        |
| 7 Marchback        | M House (2)      |
| 8 The Hobbit       | Intelligence (2) |
| 9 Camel 1K Chess   | Garret (2)       |
| 10 Snake Dive      | — (—)            |

Compiled by W. H. Smith. Figures in brackets are best worst positions

## BEST SELLERS

## Top 30

- |                           |                   |               |
|---------------------------|-------------------|---------------|
| 1 Memo Miner              | Software Projects | Spectrum (1)  |
| 2 Marchback               | Games             | Spectrum (2)  |
| 3 3D Art Attack           | Quicksilver       | Spectrum (2)  |
| 4 Alice Jane              | Ultimate          | Spectrum (2)  |
| 5 Marchback               | Games             | C&M 64 (12)   |
| 6 The Hobbit              | M House           | Spectrum (2)  |
| 7 Bear Beaver             | Artic             | Spectrum (22) |
| 8 Lunar Jumper            | Ultimate          | Spectrum (2)  |
| 9 Chinese Juggler         | Games             | C&M 64 (27)   |
| 10 Chuckle Egg            | A & P             | Spectrum (17) |
| 11 Snake Run (The Field)  | Quicksilver       | Spectrum (22) |
| 12 Bokemo Soldier         | Games             | Spectrum (25) |
| 13 Frogger                | Microdeal         | Dragon (7)    |
| 14 Breaker                | Vision            | VIC-20 (22)   |
| 15 The King               | Microdeal         | Dragon (7)    |
| 16 Falcon Patrol          | Virgin            | C&M 64 (12)   |
| 17 Hobbit                 | M House           | C&M 64 (12)   |
| 18 Jet Set Willie         | Software Projects | Spectrum (—)  |
| 19 Chequered Flag         | Pagan             | Spectrum (12) |
| 20 Outburst in the Jungle | Microdeal         | Dragon (27)   |
| 21 Marchback              | Supernova         | PS2 (22)      |
| 22 Pecos                  | Imagins           | Dragon (22)   |
| 23 Zaxxon                 | Imagins           | Spectrum (17) |
| 24 Hammer Attack          | Garret            | Spectrum (2)  |
| 25 Panstrider             | M House           | Spectrum (12) |
| 26 Chequered Flag         | CDS               | C&M 64 (22)   |
| 27 Crazy Kang             | Imagins           | C&M 64 (22)   |
| 28 Quaker                 | Voyager           | C&M 64 (—)    |
| 29 Arcade                 | Imagins           | VIC-20 (22)   |
| 30 Castleway              | Now Generation    | Spectrum (—)  |

Compiled by PCS Distribution (2254 22/11) from a sample of 40 dealers in the U.K. and Northern Ireland. Contact for sales in the European market direct B.

## Top Ten programs for the Commodore 64

- |                          |                   |     |
|--------------------------|-------------------|-----|
| 1 Memo Miner             | Software Projects | (2) |
| 2 Snake City             | Imagins           | (—) |
| 3 Mr. Worme              | Games (2)         |     |
| 4 Falcon Patrol          | Virgin (2)        |     |
| 5 Chinese Juggler        | Games (2)         |     |
| 6 Snake Run (The Field)  | Quicksilver (2)   |     |
| 7 Megawatts              | Panstrider (2)    |     |
| 8 Vortex Raiders         | Imagins (—)       |     |
| 9 Forbidden Forest       | Imagins (—)       |     |
| 10 Ranges of Mount Carad | Llanesoh (—)      |     |

## DRAGON 32 PROGRAM

The Dragon has a good-sized memory, but how do you recall location numbers up? Find out by trying it in the Memory Game.

The program works by giving you a series of ten problems to solve in two minutes.

Each problem consists of

1. A number of object names appear in random positions on the screen.
2. You study the words for 10 to 30 seconds — the more words according to difficulty level — then a prompt is given three times in rapid succession.
3. The screen darkens, followed by the repositioning of the object names (randomized).
4. After you have studied the repositioned names the screen will clear and then you will be given the problem of finding the new location of the object.
5. Five minutes elapsed and you have answered correctly or incorrectly and the program again will randomly select its possible within two minutes. This means that you should expect the time with your response to be timing about 10 minutes.

Full instructions are also in the program.

There is a timing system and a high-score table. This high-score register is clearly located in the listing so you can see it in your own listing.

### How it works

80-90 user's record of file, set  
END to turn on random  
position error

90-120 title page  
120-130 introduction  
130-140 difficulty level  
140-150 number of objects  
150-160 random name variables  
and count  
160-170 random data between  
random count  
170-180 memory game protocol  
180-190 compare and score given  
190-200 high-score table routine  
200 another game?

```

100 REMARKS ARE IN BRACKETED FORM
200 REMARKS ARE IN THE COMMENT
300 REMARKS ARE IN THE COMMENT
400 REMARKS ARE IN THE COMMENT
500 REMARKS ARE IN THE COMMENT
600 REMARKS ARE IN THE COMMENT
700 REMARKS ARE IN THE COMMENT
800 REMARKS ARE IN THE COMMENT
900 REMARKS ARE IN THE COMMENT
1000 REMARKS ARE IN THE COMMENT
1100 REMARKS ARE IN THE COMMENT
1200 REMARKS ARE IN THE COMMENT
1300 REMARKS ARE IN THE COMMENT
1400 REMARKS ARE IN THE COMMENT
1500 REMARKS ARE IN THE COMMENT
1600 REMARKS ARE IN THE COMMENT
1700 REMARKS ARE IN THE COMMENT
1800 REMARKS ARE IN THE COMMENT
1900 REMARKS ARE IN THE COMMENT
2000 REMARKS ARE IN THE COMMENT
2100 REMARKS ARE IN THE COMMENT
2200 REMARKS ARE IN THE COMMENT
2300 REMARKS ARE IN THE COMMENT
2400 REMARKS ARE IN THE COMMENT
2500 REMARKS ARE IN THE COMMENT
2600 REMARKS ARE IN THE COMMENT
2700 REMARKS ARE IN THE COMMENT
2800 REMARKS ARE IN THE COMMENT
2900 REMARKS ARE IN THE COMMENT
3000 REMARKS ARE IN THE COMMENT
3100 REMARKS ARE IN THE COMMENT
3200 REMARKS ARE IN THE COMMENT
3300 REMARKS ARE IN THE COMMENT
3400 REMARKS ARE IN THE COMMENT
3500 REMARKS ARE IN THE COMMENT
3600 REMARKS ARE IN THE COMMENT
3700 REMARKS ARE IN THE COMMENT
3800 REMARKS ARE IN THE COMMENT
3900 REMARKS ARE IN THE COMMENT
4000 REMARKS ARE IN THE COMMENT
4100 REMARKS ARE IN THE COMMENT
4200 REMARKS ARE IN THE COMMENT
4300 REMARKS ARE IN THE COMMENT
4400 REMARKS ARE IN THE COMMENT
4500 REMARKS ARE IN THE COMMENT
4600 REMARKS ARE IN THE COMMENT
4700 REMARKS ARE IN THE COMMENT
4800 REMARKS ARE IN THE COMMENT
4900 REMARKS ARE IN THE COMMENT
5000 REMARKS ARE IN THE COMMENT
5100 REMARKS ARE IN THE COMMENT
5200 REMARKS ARE IN THE COMMENT
5300 REMARKS ARE IN THE COMMENT
5400 REMARKS ARE IN THE COMMENT
5500 REMARKS ARE IN THE COMMENT
5600 REMARKS ARE IN THE COMMENT
5700 REMARKS ARE IN THE COMMENT
5800 REMARKS ARE IN THE COMMENT
5900 REMARKS ARE IN THE COMMENT
6000 REMARKS ARE IN THE COMMENT
6100 REMARKS ARE IN THE COMMENT
6200 REMARKS ARE IN THE COMMENT
6300 REMARKS ARE IN THE COMMENT
6400 REMARKS ARE IN THE COMMENT
6500 REMARKS ARE IN THE COMMENT
6600 REMARKS ARE IN THE COMMENT
6700 REMARKS ARE IN THE COMMENT
6800 REMARKS ARE IN THE COMMENT
6900 REMARKS ARE IN THE COMMENT
7000 REMARKS ARE IN THE COMMENT
7100 REMARKS ARE IN THE COMMENT
7200 REMARKS ARE IN THE COMMENT
7300 REMARKS ARE IN THE COMMENT
7400 REMARKS ARE IN THE COMMENT
7500 REMARKS ARE IN THE COMMENT
7600 REMARKS ARE IN THE COMMENT
7700 REMARKS ARE IN THE COMMENT
7800 REMARKS ARE IN THE COMMENT
7900 REMARKS ARE IN THE COMMENT
8000 REMARKS ARE IN THE COMMENT
8100 REMARKS ARE IN THE COMMENT
8200 REMARKS ARE IN THE COMMENT
8300 REMARKS ARE IN THE COMMENT
8400 REMARKS ARE IN THE COMMENT
8500 REMARKS ARE IN THE COMMENT
8600 REMARKS ARE IN THE COMMENT
8700 REMARKS ARE IN THE COMMENT
8800 REMARKS ARE IN THE COMMENT
8900 REMARKS ARE IN THE COMMENT
9000 REMARKS ARE IN THE COMMENT
9100 REMARKS ARE IN THE COMMENT
9200 REMARKS ARE IN THE COMMENT
9300 REMARKS ARE IN THE COMMENT
9400 REMARKS ARE IN THE COMMENT
9500 REMARKS ARE IN THE COMMENT
9600 REMARKS ARE IN THE COMMENT
9700 REMARKS ARE IN THE COMMENT
9800 REMARKS ARE IN THE COMMENT
9900 REMARKS ARE IN THE COMMENT
10000 REMARKS ARE IN THE COMMENT

```

# How's your memory? This will put it to the test

Quick recall is needed to play Tim Copey's game for the Dragon 32. Type it in and test the family, changing the words when they get too familiar



**Major variations**  
 80: word of file  
 90: W 10 100, 100 average for time  
 100: high score table  
 110: score  
 120: number of objects  
 130: compare  
 140: display name  
 150: answer to memory object  
 160: position, later used for  
 "another game" option

The program was about 31K of RAM.

The BASIC 6104 command is used to place location in certain points and any key has been entered (including DEL/DEL).

The data can be changed if you find you are becoming too familiar with the words — replace the line 13 of the 13 words with words of his or her characters. The first name, Danny Copey, is there to make the program function correctly.

The listing will be used on certain messages is achieved by using PRINT.

First the message is printed normally and then it is repeated in the same place in reverse order. This process is repeated a number of times in a FOR...NEXT loop.

When I was developing the second efforts for the table page I discovered a good fast/slow speed which can be found in 1/2.

### How to remember

To get a version of the program running on your own computer, use the data before the program and the format of your name in the program a Dragon Memory Game is fairly standard on the program could be considered.

```

100 SCREEN WILL CLEAR AND ALL THE
110 REMARKS WILL BE DISPLAYED HERE EXCEPT 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

```





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